

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Mitsufumi WADA et al.

Application No.:

Filed: March 28, 2006

For: BIOCATALYST FOR PRODUCTION OF
D-LACTIC ACID (as amended)

Group Art Unit:

Examiner:

Confirmation No.:

FIRST INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. § 1.56, the accompanying information is being submitted in accordance with 37 C.F.R. §§ 1.97 and 1.98. Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed.

To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner initialed copy of this form be returned to the undersigned.

Respectfully submitted,

BUCHANAN INGERSOLL PC

Date March 28, 2006By: Robert G. Mukai

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FIRST INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of

2

Complete if Known

Application Number

10/573813

Filing Date

March 28, 2006

First Named Inventor

Mitsufumi WADA et al.

Examiner Name

Attorney Docket Number

1034232-000019

U.S. PATENT DOCUMENTS

| Examiner Initials | Document Number | Kind Code (if known) | Name of Patentee or Applicant of Cited Document | Issue/Publication Date (MM-DD-YYYY) |
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FOREIGN PATENT DOCUMENTS

| Examiner Initials | Document Number | Kind Code (if known) | Country | Date of Publication (MM-DD-YYYY) | STATUS | | | | | | |
|-------------------|-----------------|----------------------|---------|----------------------------------|-------------|---------------------|--------------------|---------------|------|----------|---------------|
| | | | | | Translation | Partial Translation | Eng. Lang. Summary | Search Report | IPER | Abstract | Cited in Spec |
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NON-PATENT LITERATURE DOCUMENTS

| Examiner Initials | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
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| | ZHOU et al., "Production of Optically Pure D-Lactic Acid in Mineral Salts Medium by Metabolically Engineered <i>Escherichia coli</i> W3110," <i>Applied and Environmental Microbiology</i> , Jan. 2003, pp 399-407, Vol. 69, No. 1, American Society of Microbiology* |
| | DYM et al., "The crystal structure of D-lactate dehydrogenase, a peripheral membrane respiratory enzyme," <i>Proc. Natl. Acad. Sci.</i> , Aug 15, 2000, pp 9413-9418, Vol. 97, No. 17, USA* |
| | BLATTNER et al., " <i>Escherichia coli</i> K-12 MG1655 section 192 of 400 of the complete genome," Database GenBank Accession No. AE000302, Dec 1, 2000* |
| | SHAW et al., "Vinylglycolate Resistance in <i>Escherichia coli</i> ," <i>Journal of Bacteriology</i> , Mar 1975, pp 1047-1055, Vol. 121, No. 3, American Society for Microbiology* |
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| | CHANG et al., "Homofermentative Production of D- or L-Lactate in Metabolically Engineered <i>Escherichia coli</i> RR1," <i>Applied and Environmental Microbiology</i> , Apr 1999, pp 1384-1389, Vol. 65, No. 4, American Society for Microbiology* |
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| | KOCHHAR et al., "Cloning and overexpression of <i>Lactobacillus helveticus</i> D-lactate dehydrogenase gene in <i>Escherichia coli</i> ," <i>Eur. J. Biochem.</i> , 1992, pp 799-805, Vol. 308, FEBS* |

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| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

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|---|------------------------|--------------------------|-----------------------|
| FIRST INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) | | Complete if Known | |
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| | | First Named Inventor | Mitsufumi WADA et al. |
| | | Examiner Name | |
| Sheet 2 of 2 | Attorney Docket Number | 1034232-000019 | |

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| Examiner Initials | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
|-------------------|---|
| | KOCHHAR et al., "Cloning and overexpression of the <i>Lactobacillus bulgaricus</i> NAD ⁺ -dependent D-lactate dehydrogenase gene in <i>Escherichia coli</i> : purification and characterization of the recombinant enzyme," <i>Biochemical and Biophysical Research Communications</i> , June 15, 1992, pp 705-712, Vol. 185, No. 2, Academic Press, Inc.* |
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| | BARNES et al., "Mechanisms of Active Transport in Isolated Membrane Vesicles," <i>The Journal of Biological Chemistry</i> , Sep 10, 1971, pp 5518-5522, Vol. 246, No. 17, USA* |
| | MAT-JAN et al., "Mutants of <i>Escherichia coli</i> Deficient in the Fermentative Lactate Dehydrogenase," <i>Journal of Bacteriology</i> , Jan 1989, pp 342-348, Vol. 171, No. 1, American Society for Microbiology* |
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| | HANSEN et al., "Properties of Mutants of <i>Escherichia coli</i> Lacking Malic Dehydrogenase and Their Revertants," <i>The Journal of Biological Chemistry</i> , May 10, 1979, pp 3570-3575, Vol. 254, No. 9* |

*Copy attached.

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